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ABSTRACT

The five research reviews and proceedings of a national conference on research pertain to vocational education research organized under these topics: (1) Proceedings of the National Conference on Research, covering research needs, guides for research, coordination of research, development of leadership, state plans for research and development, relationships between state and local programs, manpower needs, national goals and research priorities, information services for improvement of vocational education, implementation of research, translation of research results into change factors, and utilization of local environment in community action research, (2) Research Handbook for Vocational-Technical Education, (3) Review and Synthesis of Research in Industrial Arts Education, (4) Encyclopedia of Educational Research, (5) Training Programs in Selected Health Occupations, and (6) Manpower Programs for Deprived Urban Neighborhoods. A guest editorial discusses the coming of age of vocational research. A bibliography lists six studies reported in this issue and eight additional related topics on research in vocational and technical education. (DM)

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RESEARCH VISIBILITY

SYNTHESIS / APPLICATION / DISSEMINATION

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GUEST EDITORIAL

VOCATIONAL RESEARCH a coming of age

WILLIAM W. STEVENSON

Guest privileges of the month for the miniature editorial are extended to William W. Stevenson, director, Research Coordinating Unit of Oklahoma State University. As Research Visibility places the monthly focus on research and particularly that of the proceedings and product of the National Vocational Research Conference of 1969, there is no more appropriate commentator on vocational research and its faltering steps to maturity than Dr. Stevenson.

As a strong disciple of functional research and program change, conference pre-planner, contractor, "master of ceremonies," and evaluator of the 1969 Conference, Dr. Stevenson reflects on a new and functional ordering of priorities for practitioner and researcher alike. Of the basic value of research, he poses the eternal question, "Will it make a difference?"

RESEARCH in vocational-technical education is growing up—we as researchers have been and are still in a process of maturation. The evidences and effects of this still incomplete maturing are discernable in the work we do, the attitudes we express and the goals we seek. This editorial will attempt to gauge the progress, to chart the direction and to evaluate the results of this new look for vocational research.

For the purposes of this writing, I would define research in its most generic sense as a function, but not the whole, of planning and program development. This function includes the collection, analysis and interpretation of information and data for presentation to administrators at all levels to improve the decisions relative to vocational education. The research process should assist in (1) setting objectives, (2) developing procedures to reach those objectives, and (3) thoroughly testing and evaluating results. The objective or goal of this function is to facilitate change and improvement in vocational-technical education.

This definition, which admittedly runs the gamut from conception of an idea almost to implementation, is a part of the more mature concept which most vocational researchers have of themselves and their work. Further signs of research having moved from the "age of innocence" to the "age of accountability" are seen in the normal signs of maturity. (1) We have been able to establish our goals rather than trying to be all things to all people. (2) We no longer see our activities as the "center of life" but recognize that we are a part of a total system. (3) We have broadened our range of acceptance, but we have become more selective in what we accept.

The first sign of maturity, namely our recognition of our own limitations, is illustrated by the following reference. One of the primary concepts which came out of the National Conference on Research in Oklahoma City in February 1969 was the idea of "differentiated staffing." By this, I think we mean that we need different kinds of people for different jobs, or that the researcher should not be held responsible for all of the steps in the adoption process.

We are all aware—probably researchers more than others—of the problem of research being completed and put on the shelf. Although, as some have said, this may be the best place for some research, it is obvious that someone must find a way to get research which can contribute to program improvement off the shelf and into the classroom—*this need not be the researcher.*

We must find or train other people—other kinds of people—to perform the other functions in implementation. The machinery for translating research findings into a program plan requires much coordinated effort and a clear delineation of responsibilities among individuals in an agency. We must find ways to describe and identify the people capable of performing these translating functions, and we must develop procedures for facilitating the free flow of information within the agency and to its client schools.

The second evidence of maturity is our ability to view our function as researchers from a different angle. We have shed the "prima donna" complex in which all must be right for us. We have come down off the pedestal of pure and controlled conditions to wrestle with the real problems which must be solved in the administrator's office and in the classroom if vocational education is to be fully effective.

The theme of the upcoming National Conference of RCU Directors will be "The Role of the Research Coordinating Unit as a Support System for Vocational-Technical Education." At this point in time researchers are less concerned with changing the environment in which we work so that ideal conditions exist for research, but instead we are attempting to make our research a part of the everyday, problem-filled, decision-requiring life of vocational education. We are becoming a part of the system—a unique, sometimes irritating, questioning, abrasive part—but still a part of the ongoing, real life system of vocational education.

It may sound contradictory to say that we have broadened our range of

acceptance but have become more selective in what we accept, but the intent is to point out that we are now willing to take what those in other disciplines have learned and adapt it to vocational education. On the other hand, we are no longer interested in research for the sake of research—what we do must hold promise of giving us answers on how to do a better job of training for occupations. Research which does not speak to the solution of real and immediate problems is worthy of support by some agency, but for proposed state vocational education research, we must constantly ask the question, "Will it make a difference?"

This dedication to involvement in change, this recognition of a mission to point the way for improvement, this becoming a part of the system must elicit a response from the total body of vocational education personnel. The vocational educator must after sufficient trial and proving accept the introduction of innovative activities into the existing system. He must have the courage to try the unfamiliar, willingness to consider practices which have not yet been sanctioned by his peers, and strength to risk failure in a local unprotected setting.

If this innovative atmosphere is to exist there must be supportative and facilitating behavior by state staff. Finally, the renewing of the system of vocational-technical education depends in a large part on the imagination of the researcher, the ability of the change agent to translate research into action, the support of the state staff, and the creativity of the teachers.

This may not complete the team needed to renovate vocational programs, but it will hopefully eliminate some of the impulsive improvising of the past. Rapid response to new ideas through a truly innovative system may only come when we put teachers and research implementers together in a school system for the daily face-to-face, research input and problem feedback communication essential to change.

Proceedings: National Conference on Research

See Bibliography for Information on availability of complete studies

Proceedings: National Conference on Research, 1968 Vocational Education Amendments. Coordinating Unit for Research in Vocational Education, Oklahoma State University, Stillwater, Okla. April 1969.

The National Conference on Research, one of nine national conferences covering various phases of the 1968 Vocational Education Amendments, was conducted to determine "the increasing role of research in the development of local and state vocational-technical education programs and . . . the direction of research with . . . leaders who are vitally concerned with comprehensive programs in the field of vocational and technical education." The conference was followed by nine regional clinics and the publication of the *Research Handbook for Vocational-Technical Education*, which is abstracted in this issue of *RV*.

Objectives which were sought to be fulfilled by the entire three-phase project were:

1. To identify research needs in vocational and technical education for both the States and the U.S. Office of Education.

2. To explain and discuss new authorization, rules and regulations, and proposed guides for research in vocational education.

3. To develop techniques for effective coordination with local and state governmental and non-governmental institutions and agencies that have a concern for vocational and technical education programs.

4. To develop increased leadership capabilities for selective dissemination of research findings to supervisors, teacher-educators, administrators, and public school teachers.

5. To develop a guide for the organization of state plans for research and development with suggestions for integrating these plans by USOE with research funds available to the communities.

6. To give leadership in the development of annual and long-range program plans for research and development.

A paper titled "Strategies for Developing Model Annual and Long-Range Program Plans for 'Research' at State and Local Levels" was presented by Jerome Moss, Jr., of the University of Minnesota and Joseph F. Malinski of the Minnesota State Department of Education. Information which should be included in the plans and principles for making decisions was discussed, and examples based on the Minnesota application were provided.

As a factor in long-range planning, the role and function of "research" were investigated. After calling for better organization for innovation and change, the authors stressed that "the generation of new ideas, methods of determining what is useful, and accelerating the adoption of proven ideas may well be the greatest need of all in our education system."

These things can be carried out by a formalized research-related subsystem which would utilize as inputs such educational problems as discrepancies between (a) information needed and information available, (b) educational inputs and outputs, (c) existing knowledge and practice, (d) social values and realities, and (e) the relative position today in creating the future we would like.

Functions suggested for performance by the subsystem were illustrated in an "Educational Change Model" developed by Dr. Moss. The model can be found in a circular chart form in the report of the conference proceedings, in the *Research Handbook for Vocational-Technical Education*, or in *The Evaluation of Occupational Education Programs*, Technical Report 3, by Dr. Moss, published by the Minnesota RCU in September 1968. In brief, the functions are:

1. Conducting operational (applied) research for immediately applicable information.

2. Developing and updating curriculums and instructional materials.

3. Evaluating the effectiveness of occupational education programs.

4. Stimulating, facilitating and coordinating innovative research and development.

5. Inventing, engineering, produc-

ing, and evaluating prototype curriculums and materials.

6. Conducting applied research for long-range improvements.

7. Administering research-related grants and contracts supported by state-controlled funds.

8. Disseminating results of research-related activities.

9. Coordinating and conducting training activities.

It was emphasized that systematic improvement of occupational education practice depends on the performance of *all nine* functions. A brief description of the general nature of the activities associated with each function was presented to clarify the meaning of the functions. The necessity of designating specific persons or institutions to assume responsibility for the conduct of these activities on a continuing basis was underlined.

Organizing Subsystems

General principles for organization and administration of the research-related subsystem were presented. At the state level, it was suggested that the operational research and normative development activities might be conducted by the same persons, and would most profitably be closely linked with the planning, operations and management subsystems. The evaluation function would also be best linked to the operational program and normative curriculum development.

All of these activities, therefore, should be assigned to the vocational division of the State Department of Education. Also, a special staff within the vocational division of the State Department of Education should be assigned to supervise research-related projects and contracts made with other agencies and institutions in the state.

Other research-related functions, such as "(a) stimulation, facilitation and coordination of innovative research and development, (b) dissemination, and (c) research training" would best be performed outside the State Department of Education, perhaps in a Research Coordinating Unit or other environment which would foster new ideas and offer sources of information.

Formal research structures are not suggested for local or area vocational schools, although the need for personnel for these schools to be actively engaged in research-related activities is recognized. Research needs in schools with occupational programs should be supported through local budgets, and faculty participation in research activities should be encouraged. The State should make available to these schools research services including technical consultation, dissemination and research training.

Mechanisms are required for coordinating the activities of the research-related subsystem with those of other subsystems of occupational education and with other nonoccupational aspects of education. Such mechanisms should exist at the state level, between the state and local levels, and between the state, regional and federal levels. Coordination can be attained through use of annual research plans between agencies, advisory committees, statewide research plans, or through the efforts of a Review Committee appointed by the Research Coordinating Unit.

The Review Committee would "review and make recommendations about all individual research-related proposals requesting state funds, or being forwarded to the Commissioner, U.S. Office of Education, through the State Board." Coordination of state, regional and federal research activities can be accomplished through regional associations of Research Coordinating Units and through close relationships between the state organizations and the U.S. Office of Education.

Sources of Funds

Sources of research-related funds and the relationships between these various sources were discussed in the presentation. Both sources of continuing funding and terminal funding sources were considered.

Though the task of long-range planning is endless, annual planning is more specific. It is through annual planning that the research-related subsystem materializes.

A basic decision in annual planning regards the relative allocation of funds between research-related organizations (RCUs, Program Planning and Development Sections and Evaluation Sections) and individual projects (solicited and unsolicited).

Factors which may affect this decision include: (a) the need for maintaining at least a minimum of activity in each of the research-related functions at the state level; (b) the number and competency of individual researchers available in the state; (c) the need for "tooling-up" research organizations, such as research coordinating units, so that future research appropriations may be used most efficiently; and (d) prior experience in performance efficiency of various research organizations, taking into account "new opportunities and constraints likely to be imposed in the years ahead."

Another basic function of annual planning is determining activity priorities. It was proposed in this presentation that "the Research Coordinating Unit should have responsibility . . . to ascertain the level of intensity and the general direction or kind of activities that consumers of research-related products feel are needed in the state." Results of such a survey would be used as a guide in the selection of activities and in formulation of a priority list of activities. Techniques for a survey of this nature were illustrated.

Program Budgeting

Translation of proposed activities and projects into terms of estimated costs (program budgeting) is another aspect of annual planning. It was suggested that these costs "be estimated each year for the succeeding five years." Both organizational budgets and budgets for individual projects must be treated in this manner. In the budget, costs would be related to specific activities, and these activities would be related to organizational function. Remaining funds would then be allocated to individual projects by the Review Committee.

Implications of the subsystem proposed in this presentation include those which recommend that federal regulations should (a) encourage each state plan to contain one part which would deal with *all* nine research-related functions noted in this paper; (b) provide that the part of each state plan dealing with research-related activities shall be reviewed and approved by the Division of Comprehensive and Vocational Education Research in cooperation with the Division of Vocational and Technical Education; (c) permit the operation of more than one

(research) organization in each state. . . at the basic reimbursement rate of 75 percent; (d) permit a reimbursement rate of 90 percent for . . . (certain other) expenditures, and (e) permit transfer of certain funds by the State Board when such action is considered necessary.

A second implication of the subsystem is the need for its evaluation. The problem of evaluation was not attacked in the presentation, but some of the dimensions of the problem were outlined.

Relationships Between State and Local Programs

"Strategies for Correlated Interface Relationships Between the Total State Program and Local Programs of Research," a working paper presented by Gordon Swanson of the University of Minnesota, considered various options at local and state levels for including research in program plans.

Information provided by the background of the Congressional Committee Reports of 1968 to the "legislative mandate" in the 1968 Vocational Education Amendments was presented.

"First of all, Congress continues to place a high value on research in vocational and technical education. Although their appropriations have not measured up to their authorizations, their priorities for research are, nevertheless, substantial. Secondly, they are aware of the problems of staffing for research, a recurring theme in both the Senate and the House Committee Reports. Thirdly, they want research to contribute to existing programs as well as to new programs and new emphases. Finally, they want the research programs to be a part of plans generated at local and state levels as well as at the federal level."

A reappraisal of federal science policy by Donald Hornig, Presidential Special Assistant for Science and Technology, lends insight to interrelationships needed in a program of research in vocational education. Major unresolved problems as seen by Dr. Hornig fall into four categories: (a) research and the universities, (b) the nature of research support, (c) the appropriate mix of governmental agencies and educational institutions, and (d) the recurrent problem of achieving some balance and accommodation between the chaos of a laissez-faire system of federally sponsored research and some degree of central direction.

Dr. Hornig provides three guiding principles:

1. Decision-making should be pushed to the lowest responsible level appropriate to that decision.

2. There is a clear need for more systems analysis on a government-wide scale.

3. It is profitable and appropriate to employ both competition and careful planning in the realm of governmental and institutional activity.

Dr. Swanson outlined a structure of state and local programs of research in four dimensions:

1. *Research functions.* They include "research" (the object of which is to generate new knowledge) and "training" (the object of which is to recruit, train and retrain manpower necessary to undertake the various functions of research); experimental programs (in which there are experimental elements introduced in a controlled setting); developmental programs (in which materials, techniques, processes or implements are produced which will accomplish pre-specified objectives), and pilot programs (the object of which is dissemination).

A final function of research is the dissemination of information, which assists people to find what they are looking for and informs professionals about improved practices in their respective fields.

2. *Project and program support.* The difference between these two instrumentalities was described as project support being "time-defined" and program support permitting "the choice of alternative strategies during the course of the program of inquiry."

3. *Administrative devices employed*, including state, local and research coordinating unit plans.

4. *Research "program categories"* which describe the substantive content of the research undertaken. Among these will be found educational levels, target groups, curriculum emphases, educational functions, demographic characteristics, educational process characteristics, and others.

Three suggestions were made regarding the content of the state program: (a) it should contain statements of what we wish to know (research) and what we wish to be able to do (development); (b) it should contain the opportunity for alternative strategies and hypothesis for solutions to defined educational problems or priorities, and (c) it should address itself to a decision-oriented planning process by evolving a five-year plan.

Suggested guides for possible strategies in relating state and local programs of research were offered by Dr. Swanson. In brief, they are:

—Establish a research commitment at both the state and local levels.

—Place a program oriented research commitment in the state and local plans.

—Give attention to training for research and for planning.

—Employ a variety of models for emphasizing various strategies for research and planning.

—Avoid the temptation to research subsystems without looking at the system as a whole.

—Develop strategies for institutionalizing the research and development process.

—Expand present mechanisms and create new ones to accomplish research, development and training.

—Establish a strategy for complementarity among the various research, development and training stimuli within each state.

—Encourage the production of research and development *from* as well as *dissemination to* the local education agencies.

—The research thrust of vocational education will be guided by what is omitted from state and local plans as well as what is included.

ERIC Publication

A monthly companion piece to *Research in Education, Current Index to Journals in Education* (*CIJE*), is now being published. *CIJE* will provide indexing for articles published in more than 200 journals in the field of education and related areas.

Manpower Needs, National Goals and Research Priorities

A presentation on "Manpower Needs, National Goals and Research Priorities in Vocational-Technical Education" was made by Leonard A. Lecht, Center for Priority Analysis, National Planning Association.

Underlining the fact that the 1968 Amendments demonstrated an interest in reordering priorities through "more effective planning to relate state and local vocational education programs to the anticipated manpower requirements and job opportunities at the national, state and local levels," Dr. Lecht said that this shift in priorities will be implemented by a search for new research strategies in vocational education.

As a result of the inequities in today's society—the differences between the overall affluence of the nation and the poverty of some of its urban areas—"relevance" and "priorities" have become the basis for vocational education planning. This basis raises the question: "What are the research strategies which can enable us to translate manpower information into vocational programs?"

Answers to this question require that a bridge be built between economists and vocational researchers and decision-makers. Although cautioning against complete reliance on manpower projections, Dr. Lecht noted that these statistics "can be useful in indicating strategic areas of change to be taken into account or the implications of alternative developments for the economy for manpower utilization."

Dr. Lecht proposed a "change agent" for the relationship of manpower needs and vocational-technical education. This agent is a new perspective "concerned with the impact of the pursuit of national goals for manpower needs and for education." After noting that the pursuit of the nation's goals can affect manpower requirements by increasing manpower needs in the occupation associated with the goal, he described an ongoing project of the National Planning Association dealing with national goals in 16 areas of the economy.

Career opportunities in the next 10 years are expected to grow especially fast in the professional, technical and services occupations as a result of the national goals set for the fields of health, education and research and development. Estimated manpower needs in the 1970s for the goals in health and education and urban development are illustrated in the top table.

Estimated Manpower Requirements per Billion Dollars of Expenditure in 1975 for Selected Goals[1]
Number of Employed (in 000's)

Occupational Category	Health & Education Goal	Urban Development Goal
White Collar Workers	64.0	34.7
Professional and Technical	45.5	8.5
Managers and Self-employed	2.5	10.3
Clerical	13.3	12.2
Sales	2.7	3.7
Blue Collar Workers	15.8	53.7
Craftsmen and Foremen	6.9	27.4
Operatives	7.2	17.7
Laborers	1.7	8.6
Service Occupations	22.4	3.7
Farm Occupations	0.7	1.1
Total	102.9	93.2

[1] Refers to final demand expenditures in 1962 prices.

Estimated Distribution of Employment by Level of Educational Attainment in 1975 for Selected Goals

Years of Schooling Completed	Percent Distribution of Employment	
	Health & Education Goal	Urban Development Goal
Less than 4 years of high school	26.0%	43.0%
4 years of high school	29.0	35.5
1–3 years of college	14.5	12.0
4 years of college or more	30.5	9.5
Total	100.0%	100.0%

Depending upon which of our national goals we pursue, job opportunities would be available for persons with differing levels of education. The second table illustrates differences in the educational levels required should the nation decide to pursue either a health and education goal or an urban development goal.

Pursuit of the urban development goal would involve large numbers of persons with an educational level of four years of high school or less, and would depend heavily on high school vocational programs for training of manpower. In contrast, the junior colleges would be heavily relied upon to supply the manpower for the pursuit of a health and education goal, as many of the workers for this goal would be on the subprofessional or technical level.

Noting that state and local planning in vocational education is an important dimension of the overall planning to upgrade the income and status of persons in the "left out" groups in the nation, Dr. Lecht illustrated the potential for planning vocational education programs for creating careers for the disadvantaged.

He expects more jobs for these disadvantaged groups (non-whites) in a situation of high priority for health and education programs than

when priority is given to urban development or other programs. Should priority be given programs of urban development, it would be necessary to expand and upgrade vocational-technical programs in trade and industry and technical fields in the urban areas where admission might be granted to white, non-white and low-income youths.

In concluding, Dr. Lecht raised the question of whether or not the planning required by the 1968 Amendments will meet the needs of the urban and rural vocational schools and programs. Also, he described the problems posed in attempting to use the national manpower projections which are currently available in making state and local vocational program plans.

The need for state and local manpower projections in order to plan effectively at these levels was expressed, and the problems in preparing these projections were enumerated. Although there are gaps in manpower information, asserted Dr. Lecht, the need for planning is not diminished. Rather, the certainty with which we can plan is diminished, and a challenge is presented to make "vocational education more relevant in the society in which technology, needs, aspirations, and career opportunities are rapidly undergoing change."

Appendices to Dr. Lecht's presentation included tables of "Expenditures for Individual Goals, 1962 and 1975" and "Estimated Manpower Requirements for Individual Goals in 1962, and for Aspiration Goals in 1975," with goals for 16 areas of the economy represented.

(Another article on the subject of Dr. Lecht's presentation, "Planning Vocational Programs To Meet National Goals" by John B. Teeple of the Center for Priority Analysis at the National Planning Association, may be found in the Nov. 1969 AVJ.)

Information Services for Improvement of Vo-Ed

The need for "Information Services for Improvement of Vocational Education" was discussed by Thomas D. Clemens, Federal Executive Fellow, The Brookings Institution. Mr. Clemens felt that in order to improve education through research, development and diffusion of scientific knowledge, the development of a multi-level technical information system is necessary.

Such a system would consist of a "systematic organization of resources for acquiring, screening, processing and disseminating the information contained in a corpus of data and documents in order to make the results of research, development and current practice available to educational improvement."

The system could provide:

1. The basis for more rational problem-definition, policy formulation and decision-making.

2. Intellectual resources for implementation of such policies and decisions.

3. Specific information required for performance of continuing educational operations.

4. Verifiable, reproducible information of use in evaluating program operations.

Clemens first gave an overview of what can be learned from other fields regarding the transfer of technical information. Drawing from the "diffusion literature" studies of Everett Rogers and Ronald Lippitt, he described the "adoption process" of five phases and the sources of information from which the potential adopters derive their information during each of these phases.

- The first phase is described as the *awareness phase*, "in which the potential adopter learns of alternatives to his current practices." During this phase his information usually comes from the mass media.
- The second, or *interest phase*, is one in which further information is sought for the alternatives. Information for this phase is generally of the interpretive variety and is obtained from practitioners or documents from the source of innovation.
- An *evaluation phase*, when an "in-the-head" assessment of the relative advantage and appropriateness of the innovation is made, involves information received through personal communication.
- The *trial phase*, in which the innovation is tested on a limited basis, also relies on this type of communication, although special "packages" of interpretive information have been shown to be valuable.
- The final, or *adoption phase*, is that in which full scale, operational use of the innovation is involved.

Another mode of transfer of technical information is "information science." Various approaches of information users were described: the *current, everyday, exhaustive, brush-up,* and *browsing* approaches. Three generalizations regarding the use of information systems were made: (a) that an effective information system must provide a variety of information products, not only for different segments of the clientele, but for the same client at different stages of his work; (b) that the closest and most accessible information source is the first used and the most frequently used . . . however, his acceptance and application of the information is influenced . . . by . . . its . . . technical quality, and (c) that person-to-person communication is the preferred information source.

The relevance of these generalizations to education was based upon a study which attempted to identify the preferences of public school teachers and principals for various characteristics of information systems. In order of preference, these characteristics were: (a) ease of access to the system; (b) currency of information; (c) comprehensiveness of coverage of sources; (d) speed of service; (e) evaluative review of information provided; (f) thoroughness of documentation, and (g) flexibility of products and services.

Clemens described three components of an effective educational information system. The first component, the products which the system should generate, is divided into two types: basic products and those products which are derived from the basic products. Three forms of basic products are documents, interpretable data, and rosters of people and locations from which additional information may be obtained. Derived materials include bibliographies, access tools (indexes, abstracts, etc.) and interpretive materials.

A second component of an effective educational information system is the functions it must perform. Included among these functions are acquisition of information, evaluation of acquired information, techni-

cal processes which will make evaluated acquisitions accessible (abstracting, indexing, searching, retrieving), dissemination, and information analyses (including discipline-oriented analyses, mission-oriented analyses, and "census bureau" analyses).

The third component covers the services which must be provided by the system in order to assure use of its products. Four types of client services were noted as essential:

1. *Query negotiation*; which consists of conferences between a system agent and his client for the purposes of determining information requirements, uses and practical constraints of the information.

2. *Formulation of the search strategy*, in which the best use of the system for the particular problems of the client are determined by the system agent.

3. *Screening and analyzing search output* in order to determine further search needs, referral needs and evidence contained in the output.

4. *Client briefing* by the agent regarding information retrieved or the need for further searches.

In discussing the current status of educational information services, Clemens considered products, functions and services at local, state and national levels. Among products at the national level, he mentioned ERIC, the School Research Information Center, and the DATRIX system of University Microfilms, Inc.

State products include documents of "clinical reports of current practice or of non-experimental evaluation." Referral materials, such as the ERIC *Pace-Setter* volumes and the Michigan Ohio Regional Educational Laboratory were mentioned, as were interpretive materials such as the American Educational Research Association's *Review of Educational Research* and *Encyclopedia of Educational Research.*

Functions of educational information services have not been well developed to date, according to Clemens. Among operational or demonstration programs of data applications which he mentioned are the Midwestern States Educational Information Project, the data program of the University of California, the Tex-Pak system in Texas, and the Integrated Educational Information System operation at Oakland, Mich.

Client services at the national level consist of those performed by the various ERIC Clearinghouses and the Clearinghouse on Vocational and Technical Education.

At the state level, Research Coordinating Units were noted as being perhaps one of the best connectors between the system and the user. Although the limitations of RCUs are many, the large number of functions which they must perform with insufficient personnel or funds is critical. Other state services include a Bureau of Reference Library Services in California.

Regional services noted were the MOREL data and referral system adopted by the Ohio Education Association and the Far West Laboratory for Educational Research and Development's Communications Program.

Local services included RISE (Montgomery County, Pa.), ASSIST (Wayne County, Mich.), a county network being built on the Board of Cooperative Educational Services in New York, and intermediate school district units in San Mateo and Contra Costa Counties, Calif.

Ongoing activities for improvement in educational information transfer which Clemens mentioned included programs with the System Development Corporation and the Teaching Research Division of the Oregon State System of Higher Education; a pilot experiment for on-line query of the computerized ERIC file; a project to design alternative models for implementation of a multi-level system; making the ERIC file available in the form of computer tapes; a study to plan for systematic and continuing identification of information needs and information, and two summer institutes for training of state and local educational information personnel.

After stating four propositions regarding improvement of educational information services, he made eight suggestions for improvement:

1. Every state should take immediate steps to establish a technical information center or, in the absence of such a center, a vocational education technical information program should be established.

2. A separate data system should be established directed toward evolution of a data-based management information system.

3. Efforts should be undertaken at the state level to acquire and screen all basic documents produced at the state and local level.

4. A program of research on information needs and behavior of educational practitioners and decision-makers should be initiated in every state.

5. At the state level efforts should be made to encourage development of intermediate or local level information service centers.

6. The Research Coordinating Unit should serve increasingly as the state instrument for fostering improved information user services.

7. Attendance should be encouraged at training institutes.

8. Thoughts and comments are solicited on ways in which we can provide for a continuing dialogue on information needs and possible responses to those needs.

Professional Undertaking and Implementation of Research

George L. Brandon, professor in residence, American Vocational Association, spoke on the topic, "Professional Undertaking and Implementation of Research in the Vocational Education Amendments of 1968. Noting the diversified audience to which he was speaking, Dr. Brandon described his basic objective as being professional and informational: that of "relating vocational and technical education research to the intent, purpose and implementation of the legislation."

After relating the role of vocational-technical education to the social conditions of the times, he examined the general rationale and spirit of the new legislation. The evolution and emergence of the law was credited as the result of "powerful forces" of:

1. The nature and number of our social problems and their relation to education—and to vocational-technical education.

2. The technological, economic and political trends and issues.

3. The challenge to relevancy in education.

4. The American versus the European system of vocational education.

5. The academic and liberal dis-

dain for vocational education.

6. The nature of learning in institutionalized settings.

7. The switch from job-centered to people-centered vocational-technical education.

8. The bureaucratic, professional and disciplinary impasse.

After noting sources of disenchantment with research and reasons for this disenchantment, Dr. Brandon offered a survey of the changes in emphasis in the new law. Among the specifics of the law he pointed out that:

1. Basic focus of purpose is "access" to vocational education.

2. Advisory councils are formally installed.

3. Evaluation is a consistent thread.

4. Description of the nature of the state plan has numerous research connotations.

5. Research provisions are authorized at 10 percent of appropriations.

6. New ways are sought to create a bridge between school and earning a living.

7. Once again, we try for residential vocational education.

8. Homemaking education is singled out for special treatment.

9. Legal recognition, and emphasis of authorizations for vocational cooperative education are vigorous and progressive.

10. Congress admits the complexity of vocational curriculum development in Part I, but puts its emphasis on (a) new and changing occupations, and (b) the coordination of improvement in and dissemination of existing curriculum materials.

11. A miniature vocational education manpower act is contained in the new law.

Dr. Brandon reviewed some of the legal and professional requirements for implementation of research under VEA 68, and the research input for state plan provisions.

Regarding the formulation of research policy and professional participation, Dr. Brandon presented "several critical issues which face us." In brief, these are:

1. Research personnel and program operating personnel must take steps to influence decisions regarding use of research resources. In order to do this it will be necessary to understand each other's function and relationship to research.

2. Our research and practitioner personnel should devote a great deal more effort to dissemination of research and research utilization.

3. We must make concentrated efforts for research input into personnel development programs at all levels.

4. Investigation should be made of the need for a translator, marketer, application specialist to round out theory into practice.

5. The research enterprise must become a common denominator with the national and state advisory councils.

6. The need for "organized professional focus" should be recognized.

alysis for jobs for the community is the responsibility of educational research.

A powerful agent for change was seen in the curriculum guide. Questions through which guides may be evaluated are:

1. Have the major jobs and occupational areas been identified?

2. Is this identification accompanied by a description and analysis of the jobs, including the requisite social and background knowledges, and the behavioral skills?

3. Has this analysis been translated to the curriculum in terms of materials development, performance standards, media techniques, and methodology?

4. Does the guide provide for realistic learning experiences in and out of school?

Even if the guide does measure up to these criteria, it is of no value until implemented. This implementation was seen to require both an understanding of the technology process and the necessary instructional materials to do the job.

Instructional materials required for implementation are often provided by commercial firms; however, they are plagued by a need for better communication with research groups. A look at the classroom situation envisioned for 1978 demonstrated that a close partnership between industry and education will exist to an even greater extent than now.

The "knowledge industry" to which he referred is divided into two types of companies: small firms which deal

Translating Research Results Into Change Factors

Lawrence A. Walsh of McGraw-Hill Book Co., in presenting the topic of "Strategies for Translation of Research Results into Change Factors in Regular Vocational Education Programs," referred to the failure to translate research results for the improvement of vocational education as "a tragic waste of human resources." In order to devise a plan whereby research results may be incorporated into educational practice, he envisioned a necessity for identification of "agents for change."

Four such agents which he noted are: (a) teacher training schools; (b) the community itself, (c) curriculum guides, and (d) commercial firms.

Teacher training schools were seen to be the most suitable change agent. However, barriers within the schools, and the lack of a strong decision making structure for the use of research results, leave this agent with only a weakened amount of change stimulus.

A strong source of change stimulus is the community. Students and parents are becoming quite vocal regarding curriculum change, and employers in the community have an interest in vocational education curriculum. However, none of these persons has the adequate criteria upon which to base his interests, recommendations and demands. The provision of complete behavioral an-

Focus of New Institute Is Student Development

Basic and fundamental research for education in the areas of student growth and development, including the fields of assessment and conservation of student potential, effects of college environment, anaylsis of current curricula and career development, and theoretical analysis of economic problems of college attendance, will be undertaken by a new Research Institute of the American College Testing Program. ACT's new national headquarters building complex in Iowa City, Iowa, will house offices for the institute.

solely with educational publishing, and larger firms which have greater capabilities for instructional systems development.

Capabilities required for producing a vocational learning system were listed as: (a) developmental research (including research in learning, experimental applications of research, experimental products, research for entirely new types of products, subject-matter or skills analysis, production of models for field testing, and evaluation); (b) an understanding of behavioral psychology (and application of its findings); (c) subject-matter competence; (d) equipment competence but machine independence; (e) broad marketing operations; (f) systems analysis experience, and (g) money to invest over a long period of time.

Shortcomings which Walsh saw in research and development were that "there is too little research, too much of it is of low quality, too little is relevant to the most serious problems of vocational education; and, in general, there is too little direct relationship between research and implementation."

Instructional designers must deal with three major factors: "The nature of the subject-matter content, the nature of the learner and the nature of the learning environment." Work is being done to provide the designers with tools for analysis of subject matter; however, information is needed for dealing with the learning environment and in "diagnosing individual learners."

In addition, instruments for determining differences in learning style and experimentation with cost-effectiveness and cost-benefit techniques are needed. All of these things can be provided through increased research and development, and Walsh called upon the conference to pave the way for advancement in these areas.

Regarding the role of industry in contributing to education, two key problems were considered: (a) how to use industry for educational R and D work, and (b) how to maintain quality control of educational products and services. Generalizations made regarding the capacity of industry to do R and D work included:

—Industry has little capacity to do basic research, and this job should be left to research-oriented organizations.

—There is considerable capacity in industry to do applied research.

—Industry has the capacity to apply research findings to experimental product development.

—Industry has some capacity for developmental work in cost-benefit analysis and systems analysis.

—Industry has begun to develop capacity for doing evaluation studies.

—Industry has the capacity to supply management for research efforts.

Schools can maintain only indirect control over the characteristics and quality of the products and services offered them by industry. This control is through their buying decisions. Thus, an optimum match of the needs of education and the capabilities of industry is not resultant. Walsh called for a mechanism for enlisting the R and D resources of industry in greater accordance with the needs of education: that is, "the educational community should have more say in the priorities of the business firms."

This problem is further complicated by the lack of agreement on national priorities in the education field itself. There is a need for analyzing the needs of vocational education on a systematic and national basis; and then of influencing the allocation of R and D resources according to these needs. For this purpose Walsh called for an independent board or agency which could make these decisions without direct contracts with federal agencies or private industry.

In order to assist school personnel in deciding which instructional materials offered by private companies are most suited to their particular needs and the needs of their students, it was suggested that all companies should provide evaluative information along with new instructional materials. In this way, schools would be able to make reliable buying decisions and quality control would be maintained through a self-policing mechanism.

Because of the costliness of such evaluations, however, Walsh did not foresee them becoming available in the near future. He therefore suggested assistance of RCUs in (a) studying the process of evaluation, and (b) showing schools and colleges how to interpret evaluative data.

Utilizing Local Environment in Community Action Research

Chrystine Shack, of the New Jersey State Department of Education, presented the topic, "Strategies for Emphasizing the Utilization of Local Environment in Community Action Research." After surveying the Vocational Education Amendments of 1968 for implications relating to her topic, she asked the question: "Could the very language of the 1968 amendments be telling us that within the next few months, we as educators will be called upon to deal with and tailor our mode of functioning to the grass roots population?"

Explaining that people are a community's most valuable resource, she said that a means for utilization of community resources must be sought. After citing such innovative programs as Operation Headstart, Higher Horizons and Upward Bound, she noted that vocational education has pioneered in the utilization of the business and industrial community, but our inroads into that community need expansion and fuller application. More research into cooperative education and other similar programs was called for.

The job ahead for research was seen to be that of:

1. The validation and exploration of increased opportunities for enlarged parent and community participation in public education.

2. The exploration and validation of re-orienting vocational education, emphasizing work experience training and the involvement of business and industry.

3. The exploration and validation of developing curriculum approaches, materials and teaching strategies which will make the needed general and vocational studies meaningful and desirable to the student with limited potential.

4. The exploration and the validation of developing lines of communication and dialogue with the underdeveloped community.

5. The exploration and validation of the existence of community resources.

Research Handbook for Vocational-Technical Education

See Bibliography for Information on availability of complete studies

Research Handbook for Vocational-Technical Education. William L. Hull, et al. Research Coordinating Unit, Oklahoma State University, Stillwater, Okla. July 1969.

This publication, written for use by individuals at the local and State levels, contains a collection of ideas concerning alternative strategies for developing research policies for vocational education.

The first chapter, "Research: A Legislative Mandate," examines legislation authorizing research monies. The guiding principle of this chapter is that "a commitment to the research and development function should be institutionalized into the operations of State agencies. State monies should be budgeted to the R and D function at a sufficient level to continue program innovation regardless of the Federal research funds allocated to the State."

Conclusions drawn regarding the Congressional intent in the 1968 Amendments for the program of research are: members of Congress continue to place a high value on research in vocational and technical education, they are aware of the problems of staffing for research, they want research to contribute to existing programs as well as to new programs and new emphases, and they want the research programs to be a part of plans generated at local and State levels as well as the Federal level.

Authorizing Research Monies

Specific recommendations made in the first chapter of the *Handbook* are:

1. State and local educational agencies should not impose eligibility requirements in research programs which are in addition to Federal law.
2. Funds for research should be allocated to the States on a general non-categorical basis.
3. P. L. 90-576 stipulates that state-allocated research monies are to be used for making qualitative improvements in existing programs.
4. State-level programs and projects should relate to a national network of coordinated research effort to maximize results.

Chapter two, "State and Local Administration of Research Funds," expresses as its guiding principles: "Administrative policies at all levels should be minimal yet sufficient to allow an accounting of funds. Users of research findings should participate in the process of determining priorities for research and development activities. Decisions on research priorities should be made at the administrative level (local, State, or Federal) responsible for funding. The continuing evaluation function should be clearly separated from program development in vocational and technical education. An element of evaluation expertise from outside the system should be present in program evaluation."

Stimulating Research Effort

Various approaches are suggested for stimulation of the research effort. In brief, they include: general announcement of the availability of State monies for research and development in the local school system; participation in teacher-group meetings by representatives of the State agency; assembly of representatives of professional teacher organizations in order to advise them of teacher-conducted research projects, and conducting of state-level workshops or seminars.

Specific recommendations for State and local administration of funds included that of a continuing commitment to vocational education research in State and local plans, an advisory committee for recommending priorities for research project funding, and additional detailed recommendations regarding research review and coordination.

A statement of guiding principles for "Coordination and Dissemination of Research Findings" indicates that the most frequently used source of information is the one most accessible to the user. The research and development functions cannot be performed unless personnel have the expertise necessary to perform their duties. A technical information system should provide a variety of outputs aimed at different target audiences. Person-to-person communication is preferred among practice-oriented groups. Private industry plays an important role in disseminating information to educational practitioners.

Specific recommendations regarding coordination and dissemination of research findings include establishment of a multi-level technical information center in each state which would be compatible with a national system. In addition, differential staffing should be used in dissemination centers in order to reach different user groups. Efficient link-up with local school system personnel and research project personnel should be a part of the technical information system. Workshops and training programs in the efficient use of research information are suggested, as well as training programs in research processes.

Eliminating Duplication

The guiding principle of "Implications for National Research and Development" is: "Coordination of research in vocational education continues to be the primary responsibility of the Division of Comprehensive and Vocational Education Research. The U. S. Office of Education remains the only agency in a position to minimize unnecessary duplication with 50 new funding decision points identified in the 1968 Amendments." Recommendations for administration of a basic research program through USOE are made.

Appendices to the *Handbook* include a "Checklist for State Plan Research Provisions," "Suggested Procedures for Submitting and Funding Research Proposals," "Examples of Research Coordinating Activities," and an "Example of Research Coordinating Unit Budget."

TO ORDER COPIES . . . of the bound volumes of *Research Visibility*, send $2.50 for both the 1967-1968 and 1968-1969 volumes or $1.50 for the 1968-1969 volume alone, to the American Vocational Association, 1510 H St., N.W., Washington, D.C. 20005. These can be an important addition to any research library.

Review and Synthesis of Research in Industrial Arts Education

See Bibliography for Information on availability of complete studies

Review and Synthesis of Research in Industrial Arts Education: Second Edition. Daniel L. Householder and Alan R. Suess. The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, Columbus, Ohio. October 1969.

This publication provides an analysis and synthesis of research in industrial arts education during the three-year period, 1966 through 1968. An authoritative analysis of existent literature in this field, it is intended for the use of both practitioners and researchers. The authors state that it "should assist in identifying substantive problems and methodological approaches for researchers, as well as providing practitioners with a summary of research findings which have application to educational programs in this area."

A conference which The Center for Vocational and Technical Education sponsored in October 1968 served to review relevant completed research and to identify priority research areas in industrial arts, and complements this review. The final report of this conference, titled *National Conference on Research in Industrial Arts*, is available in published form (see bibliography).

Journal articles and doctoral dissertations were the main sources of research searched for purposes of this review. In addition, staff studies and reports of funded research were used when available. Other materials were consulted only when they were available through ERIC in order to avoid use of materials which could not be obtained in original form by the readers of this review.

The history of industrial arts, its philosophical foundations and its objectives were the first to be reviewed. An unusually large number of publications regarding the history were found to be available in the period covered by this review, although "improved selection and criticism of primary and secondary sources" was found to be needed. Recent studies based upon both traditional and novel philosophical viewpoints were found to be an important contribution to research in industrial arts education.

Three particularly meaningful studies by John Zullinger (1968), Kerby Backus (1968) and Harold Kachel (1967) are investigated for their impact on the area of objectives.

Curriculum development in industrial arts education is investigated in terms of proposals for content selection, innovative curriculum efforts, implementing curriculum change, and the status of industrial arts programs. Although curriculum development has provided one of the major thrusts of industrial arts research efforts during recent years, many reports of curriculum projects have not yet been made available.

Instructional media and methods, such as programed instruction, television, films, filmstrips, slides, and miscellaneous other media are examined in terms of their creativity, activity-oriented techniques, the specificity of direction and control, and achievement determinants. The greatest amount of research is found in the media and methods areas; research reviews by Taylor and Christensen, Suess, and Householder are also cited.

Three exemplary studies dealing with student personnel services were used in the review. These dealt with the guidance function of industrial arts and explored the educational problems of the dropout or the potential dropout.

Research regarding facilities and equipment in industrial arts laboratories was found to lie mainly in the area of planning guides. Other research dealing with effects of various elements on students was reviewed, but the need for further application of basic research of the science and engineering type to the industrial arts setting is an area where greater attention is needed.

The field of teacher education was reviewed for its organization and administration, undergraduate programs, course content selection, recruitment, and graduate study. A lack of broad-scale assessments of total undergraduate programs was noted, while a comprehensive study reporting practices for providing graduate work was done in 1965, with many others following it.

A wide range of studies was found in the area of administration and supervision of industrial arts, and this review concentrated on research in the areas of test development and evaluation of programs. Publications dealing with research in industrial arts were found to be becoming more frequently produced in recent years.

An 18-page bibliography which includes, in a great number of cases, ED numbers of works cited, is a valuable part of this publication.

Encyclopedia of Educational Research: Fourth Edition

See Bibliography for Information on availability of complete studies

Encyclopedia of Educational Research. Fourth Edition. Robert L. Ebel, et al, eds. American Educational Research Association, Washington, D. C. The Macmillan Co., Collier-Macmillan Limited, London. 1969.

This fourth decennial edition of the *Encyclopedia* offers concise summaries of research and many references for further study, and it is designed to provide a convenient source of information about most of the important aspects of education. Although the *Encyclopedia* cannot possibly be the most up-to-date source of educational research information, if only because some of its articles were written as early as 1966, it may be a useful "stepping off point" for further investigation of a given area of educational research.

Articles included in the *Encyclopedia* were provided by carefully selected experts in the various fields of education. Topics covered, which were chosen by the Board of Editors, include all kinds of contribu-

tions to educational knowledge, not simply those resulting from experimental studies. References to research in the articles are not necessarily limited to that which has been done in the decade since the *Encyclopedia* was last published, but rather they "deal with persistent educational problems and continuing educational concerns."

Content of the *Encyclopedia* is divided into 20 topics, as follows:

Developmental Psychology	Cultural Subjects
Psychology of Learning	Vocational Subjects
Human Behavior	Student Personnel
Social Foundations	Teacher Education
Curriculum	Teacher Personnel
Instruction	Levels of Education
Special Education	School Systems
Educational Measurement	School Administration
Research	Educational Finance
Tool Subjects	Educational Facilities

The area of vocational education has been divided into a group of subjects different from that usually used among vocational educators. These are: vocational and technical education, agricultural education, business education (including distributive education), home economics, safety education, professional education, medical education, legal education, engineering education, and military education.

The area of curriculum includes articles on 11 subjects: objectives and outcomes, curriculum, curriculum evaluation, educational programs (elementary schools), educational programs (secondary schools), educational programs (college and university), general education, honors programs, student organizations and activities (elementary and secondary), student organizations and activities (college and university), and education of women.

Research on research is treated in articles on research in education, research methods, experimental methods, statistical methods, survey research methods, data processing and computing, research organizations, and training research workers.

Articles on teacher education include teacher education programs, student teaching, and inservice education of teachers. Articles in the area of teacher personnel are teacher certification, economic status of teachers, tenure of teachers, teacher roles, faculty characteristics (college and university), teacher effectiveness, professional educational organizations, collective action by teachers, and academic freedom.

Various levels of education to which articles are devoted are early childhood education, elementary education, secondary education, community college education, graduate education, adult education, correspondence instruction, and extension education.

The area of school systems is divided into articles regarding local school systems, state regulation of education, cooperation, coordination and control in higher education, articulation of educational units, federal programs, relation and influence, urban educational problems, parochial schools (Roman Catholic), independent schools, proprietary schools, and education in developing nations.

Articles dealing with the area of school administration include those on administrative theory, preparation of administration, public school administration, school business administration, college and university administration, school personnel administration, improvement in educational practice, public relations, supervision, and discipline.

The greatest number of articles is devoted to the area of student personnel. These are: admissions (college and university), student financial aid (college and university), attendance, dropout (causes and consequences), records and reports, student characteristics (elementary and secondary), student characteristics (college and university), college environments, occupational placement, counseling theory, counseling (elementary schools), counseling (secondary schools), counseling (college and university), school health services, and health services (college and university).

In all, there are 164 articles in this edition of the *Encyclopedia*. Each article is new and different from those appearing in previous years. Perhaps one of the most valuable offerings of the volume lies in the references listed at the end of each article, for it is here that one may begin a thorough exploration of the field on his own, and acquire the most recent information available.

PREVIOUSLY REPORTED TOPICS

See Bibliography for Information on availability of complete studies

Training Programs in Selected Health Occupations

The Feasibility of a Systematic Study of Manpower Requirements and Education and Training Programs of Selected Health Occupations. Forbes W. Polliard. Indianapolis Hospital Development Association, Inc., Indianapolis, Ind. November 30, 1966.

The purpose of this study was to determine the feasibility of conducting a study of health manpower requirements and available training programs in the Indianapolis, Ind. area. Specifically, the researchers attempted to determine the degree to which leaders in the health professions were interested in and willing to participate in a study. In addition, a review was to be made of previous studies, and a plan was to be prepared for conducting a study in the Indianapolis area if one was found feasible, with health professions leaders to be involved in formulating the plan. Finally, the study was to determine whether this comprehensive study approach could be used in other metropolitan areas.

The project, conducted from August through November of 1966, used meetings held with groups interested in health manpower planning, personal interviews of people knowledgeable in the health manpower field, discussions with other interested groups and individuals, and a survey of available publications and articles on health manpower planning to acquire ideas and opinions to be used in answering the questions which formed the basis of the study. (An appendix to the study lists the publications and articles which were found.)

It was found that health services had been the subject of rising con-

cern. As utilization of health services has increased, so has the need for additional health manpower of a more highly skilled variety. Investigation indicated that a 20 percent increase in health manpower was needed in hospitals in order to produce complete patient care. Factors which brought on this increased need for health manpower included higher spending for health services, a more sophisticated demand for services, advances made in medicine, expansion in the field of health insurance and welfare programs, increased expected life span of Americans along with increased birth rates, greater cost of medical care, and the increased role which government plays in the field of health.

In addition, it was reported that shortages in the field of health manpower can be attributed to improper utilization of the workers who are presently in the field. Study should be made of possibilities for changing the duties and/or requirements of health workers in order to get the optimum use of those who have entered the field.

The organizations and individuals contacted during the study agreed that a comprehensive re-examination of manpower utilization, education and training plans, policies and practices was necessary in order to plan new procedures for the recruitment, education and re-education of qualified personnel for the health field. There were, however, those who felt that a comprehensive study would not be desirable at that time because of reasons such as the present extensive fragmentation of health field occupations and the need to meet present manpower requirements with an approach which would produce more rapid results.

Results of the feasibility study supported several general conclusions regarding the health manpower situation in Indianapolis. One conclusion was that there was sufficient concern regarding health manpower needs on the part of individuals and organizations involved in the field. These people were willing to participate in action programs for improvement of the health manpower situation. In addition, it was concluded that a successful comprehensive study of health manpower needs in the Indianapolis area should assist in the formation of a model program which could then be used in other cities of comparable size.

A general plan for the comprehensive study project was formulated from the results of the feasibility study. It was decided that the purpose of such a comprehensive project should be the development of an orderly plan for dealing with present and future needs for health manpower in the entire Indianapolis area. Both short and long range personnel development plans should be included in the program in order to meet immediate needs as well as to prepare for future requirements. In order to develop such plans, the comprehensive study should determine present and future demands and supplies for health services, and relate these to education and training programs.

A study should also be made which analyzes the roles and responsibilities of health professions and occupations and how these might be restructured to make optimum use of available manpower. Reorganization of health training curriculum and its content, and also formation of a "career ladder" in health occupation fields so that a person may progress professionally, therefore making optimum use of his skills, should be included in the study. Pilot programs should be formulated for the purpose of analyzing suggestions made by it and formulating these into a plan of action.

A comprehensive health manpower study should be conducted over a five-year period, with use of all resources available from the health manpower community.

Manpower Programs for Deprived Urban Neighborhoods

Education and Manpower Strategies and Programs for Deprived Urban Neighborhoods: The Model Cities Approach. National League of Cities, Washington, D.C. May 1968.

This report is an analysis and synthesis of speeches, comments and reactions by participants in a workshop sponsored by the National League of Cities and the U.S. Office of Education in late 1967. The workshop was aimed at an identification and examination of strategies and programs for possible use by city and school administrators in the planning, initiation, implementation, and coordination of comprehensive programs in manpower and education in underprivileged city neighborhoods.

As seen by the participants in the workshop, the problem facing local government administrators today is that of dealing with the young urban Negro who is caught in a vicious circle of inadequate education and training, unemployment, economic deprivation, and social segregation. It is felt that this deprivation and segregation must be removed before the crisis of the cities can be resolved.

Strategies for dealing with the problem suggested in the study include coordination of existent programs, city government involvement in educational planning, and citizen participation in planning and implementation of programs. Manpower development and education programs are also discussed as a means to a solution. It is noted that the best current example of the means for achieving progress in solving this problem is the Model Cities approach, which is explained as "the concept that all institutions and groups operating within the city must jointly plan and carry out programs for deprived urban neighborhoods."

In a summary of the major findings and conclusions of the participants in the workshop, two factors were presented as being the main reasons for unemployment or underemployment of the resident of the urban ghetto: racial discrimination and inequality of educational opportunity. It was concluded that the responsibility for coordination of the efforts of all organizations and agencies within a city lies with the city's mayor, and that city and school administrations must be effectively linked for the solution of community problems relating to education.

The concession was made that there is no one solution to the manpower problem of the urban slum. In addition it was noted that conventional solutions must be replaced by new and innovative approaches for solution of this most difficult prob-

lem. Alternative strategies must be tested for their effectiveness until a working set can be coordinated. Education was recognized as the "key to economic independence," and an intensification of a variety of educational programs was suggested.

The suggestion was made that a re-evaluation of standards for selection of employees might open doors for those who are able to perform jobs, but do not have the appearance, speech ability or educational attainment usually required by prospective employers. The idea is that some of these "qualifications" may be totally unrelated to actual job requirements.

Finally, the value of citizen participation in problem solving programs was emphasized.

plain talk

George L. Brandon, Editor, Research Visibility

A backward glance and future focus. The concentration of this month's *Research Visibility* on a national research conference is vulnerable to challenge. Was the conference and its product of sufficient value to sidestep normal, monthly reporting of vocational research and its activity? Events which have occurred (or better, have failed to occur) to shape vocational research of the future since the national conference, compel a backward glance. Although the backward glance is well reflected and documented in the conference report, *Proceedings—National Conference on Research, 1968 Vocational Education Amendments,* the prescription for the future is far more important.

The functional role of vocational research is the issue taken to task by Guest Editor William W. Stevenson this month. The editorial is highly related to the various presentations of the National Conference, some of which are reviewed this month, and to the *Proceedings*. A "cookbook" or how-to-do-it guidebook, *Research Handbook for Vocational-Technical Education,* jointly authored by Dr. Stevenson and Oklahoma State RCU's William Hull and William Frazier, was also published (ERIC # ED 030 002).

Not to be caught napping or asleep at the dissemination switch, a presentation of 16 colored overhead visuals accompanied by a script was produced to explain the *Handbook* and its importance to research planning, especially on the state and local levels. The visuals were also duplicated on paper, black and white. Therefore, in addition to the reviews this month which cannot be considered adequate for conference coverage, there is available a complete kit of materials as follows:

—The *Proceedings* and *Research Handbook*. Obtain from Office of Education, Division of Vocational and Technical Education, Washington, D.C., 20202. (Attention Dr. Otto Legg).

—Sixteen (black and white) masters from which transparencies can be made locally, and a nine-page script ($1.00).

—Sixteen color transparencies and a nine-page script ($7.50).

—Black and white masters and transparencies with script may be obtained from the Vocational Research Coordinating Unit, Classroom Building 402, Oklahoma State University, Stillwater, 74074, attention W. W. Stevenson. Prices include postage.

Undoubtedly, we shall witness in the future the research keynote of function and utilization in program change for increased effectiveness. The materials which have been made available from the National Conference should initiate and sustain a noble effort to serve this purpose.

Research and AVA Boston. A full diet of research meetings, conferences and presessions contributed greatly to the overall success of the Annual Vocational Convention in early December. Plans to consolidate a publication of convention proceedings, admittedly no small undertaking, make possible the dissemination of research activity which occurred at the annual meeting. Convention registrants will receive the proceedings. Other persons may order a copy at $2.50 from AVA.

Evaluation or Equipment—A Hard Decision. *RV* decided on the latter after a great deal of soul-searching and investigation, and the interest of our readership in mind. In this case the equipment purchased is a microfiche reader, and it marks at least a start on the purchase of a complete vocational-technical microfiche collection (ERIC) for use at AVA Headquarters. The reader is on station and in the "go" position with only momentary delay for the delivery of the VT collection.

This fact should not be interpreted that there is no interest in the collections of the other clearinghouses of the ERIC system, but the *RV* budget, unaccustomed as it is to thinking in terms of the new trillion-dollar economy, had to pull up the belt.

Consequently, the survey of *RV* readership is the questionable loser. With the receipt of the complete VT collection and reports of other selected clearinghouses together with a microfiche file, *RV* should be in a strong position to improve the thoroughness of its reporting in the future. Optimistically, the acquisition will enhance and facilitate the research synthesis-interpretation-application process envisioned in the *RV* role of the future as explained last month.

Have You Seen? The following are recent, informative and challenging:

Continuing Education for Adults. Newsletter of the ERIC/AE Clearinghouse for Adult Education. Request from University College, Syracuse University, 610 E. Fayette St., Syracuse, N.Y. 13202, Thomas F. Cummings, Editor.

Research for Tomorrow's Schools: Disciplined Inquiry for Education, Edited by Lee J. Cronbach and Patrick Suppes. The Macmillan Co., $3.95, 280 pages.

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DOCUMENT SOURCES

The material reported on in *Research Visibility* may be obtained from several sources. The source of each publication is indicated in each entry. The key to the abbreviations used there and instructions for obtaining the publications are given below:

CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies are priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC*, a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402; the catalog number is FA 5.212: 12037-A; price: 30 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator, Washington, D. C. 20210.

OTHER SOURCES—Where indicated the publication may be obtained directly from the publisher at the listed price.

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George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Marsha Golden of the AVA headquarters staff.

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